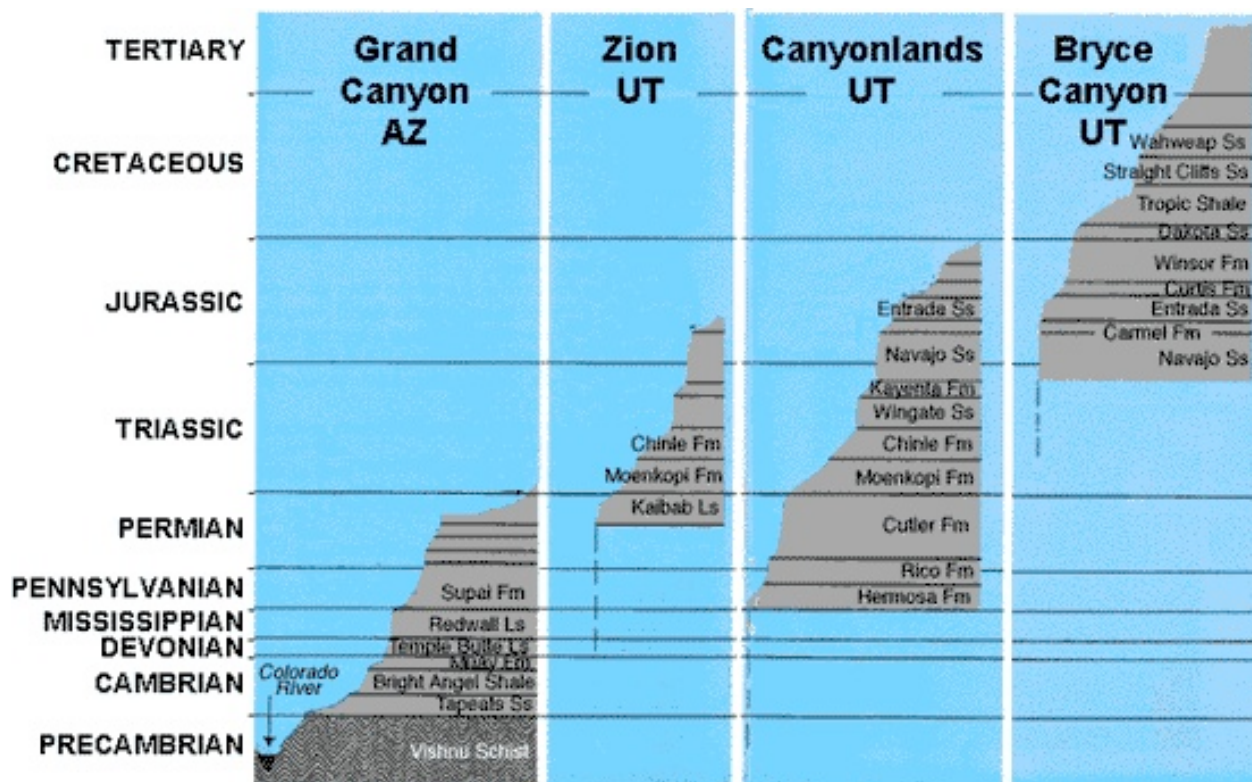


## GEOLOGIC TIME SCALE

The Earth is more than 4.5 billion years old and such a large interval of time can be difficult for the average person to comprehend. Although there is not a direct record of most of this past geologic time, earth scientists have indirect evidence of what took place in the past in the record of the earth's rocks. Some of these rock records are lost and others are jumbled, but many remain, providing accounts of the astonishing events that have taken place in the life of the earth. Geologists can reconstruct these events by combining studies on the origins of rocks (petrology) and rock layering (stratigraphy) with the evolution of life (paleontology). Using key fossils found in rock layers as markers, scientists can identify rocks of the same age throughout the world. From these studies, a relative geologic time scale based on the sequence of rock layering was established.



This geologic time scale consists of segments of time represented by recurring geologic events such as mountain building and sea level changes. Geologists have used these time segments to divide the earth's history into broad time spans known as Eons and Eras and shorter spans known as Periods and Epochs. Major discontinuities in the geologic and fossil records are chosen as boundary lines between the different time segments. For example, the boundary between the Cretaceous Tertiary periods marks a sudden mass extinction of species that included the dinosaurs. More recently, a

radiometric time scale, based on the natural radioactivity of the chemical elements in rocks, has been developed through the use of modern quantitative experimental techniques. Using these techniques, absolute ages can be assigned to some parts of the geologic time scale. For example the Cretaceous-Tertiary boundary represents a time approximately 65 million years ago.

## GEOLOGICAL TIME SCALE

EON	ERA	PERIOD	EPOCH	
PHANEROZOIC	CENOZOIC	Quaternary	Holocene	Present
			Pleistocene	
		Tertiary	Pliocene	1.6
			Miocene	
			Oligocene	
			Eocene	
			Paleocene	65
	MESOZOIC	Cretaceous		
		Jurassic		
		Triassic		
	PALEOZOIC	Permian		245
		Pennsylvanian		
		Mississippian		
		Devonian		
		Silurian		
		Ordovician		
		Cambrian		570
PRECAMBRIAN	Proterozoic			2500
	Archean			3800
	Hadean			4600

Years Before Present

ERA	PERIOD	NAME ORIGIN
<b>Cenozoic</b> Age of Recent Life	<b>Quaternary</b>	There were originally eras named Primary, Secondary, Tertiary and Quaternary, but only the latter two names are used now, and they are used as period designations.
	<b>Tertiary</b>	
<b>Mesozoic</b> Age of Medieval Life	<b>Cretaceous</b>	Derived from the Latin for chalk, and first applied to deposits in the the white cliffs region of England.
	<b>Jurassic</b>	Named for the Jura Mountains between France and Switzerland.
	<b>Triassic</b>	Named in recognition of the threefold (trias) character of these rocks in Europe.
<b>Paleozoic</b> Age of Ancient Life	<b>Permian</b>	Named after the province of Perm, Russia where these rocks were first studied.
	<b>Pennsylvanian</b>	Named for Pennsylvania because these rocks contain much coal.
	<b>Mississippian</b>	Named for the Mississippi River Valley where these rocks are well exposed.
	<b>Devonian</b>	Named for Devonshire, England where these rocks were first studied.
	<b>Silurian</b>	Named after the Celtic tribes, Silures and Ordovices, that lived in Wales during Roman times.
	<b>Ordovician</b>	
	<b>Cambrian</b>	Taken from Cambria, the Roman name for Wales.
<b>Precambrian</b>		Time from Earth's origin to the appearance of complex life forms. It covers more than 80% of Earth's history.